CONSTRUCTION TECHNOLOGY STANDARDS

This document was prepared by:

Office of Career, Technical and Adult Education
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NEVADA STATE BOARD FOR CAREER AND TECHNICAL EDUCATION

CTE MISSION STATEMENT:

The Office of Career, Technical and Adult Education is dedicated to developing innovative educational opportunities for students to acquire skills for productive employment and lifelong learning.

NEVADA DEPARTMENT OF EDUCATION

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BUSINESS AND INDUSTRY VALIDATION

All CTE standards developed through the Nevada Department of Education are validated by business and industry through one or more of the following processes: (1) the standards are developed by a team consisting of business and industry representatives; or (2) a separate review panel was coordinated with industry experts to ensure the standards include the proper content; or (3) the adoption of nationally-recognized standards endorsed by business and industry.

The Construction Technology standards were validated with the adoption of the nationally recognized standards approved by the National Center for Construction Education and Research (NCCER).

PROJECT COORDINATOR

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INTRODUCTION

The standards in this document are designed to clearly state what the student should know and be able to do upon completion of an advanced high school Construction Technology program. These standards are designed for a three-credit course sequence that prepares the student for a technical assessment directly aligned to the standards.

These exit-level standards are designed for the student to complete all standards through their completion of a program of study. These standards are intended to guide curriculum objectives for a program of study.

The standards are organized as follows:

Content Standards are general statements that identify major areas of knowledge, understanding, and the skills students are expected to learn in key subject and career areas by the end of the program.

Performance Standards follow each content standard. Performance standards identify the more specific components of each content standard and define the expected abilities of students within each content standard.

Performance Indicators are very specific criteria statements for determining whether a student meets the performance standard. Performance indicators may also be used as learning outcomes, which teachers can identify as they plan their program learning objectives.

The crosswalk and alignment section of the document shows where the performance indicators support the English Language Arts and the Mathematics Common Core State Standards, and the Nevada State Science Standards. Where correlation with an academic standard exists, students in the Construction Technology program perform learning activities that support, either directly or indirectly, achievement of one or more Common Core State Standards.

All students are encouraged to participate in the career and technical student organization (CTSO) that relates to their program area. CTSOs are co-curricular national associations that directly enforce learning in the CTE classroom through curriculum resources, competitive events, and leadership development. CTSOs provide students the ability to apply academic and technical knowledge, develop communication and teamwork skills, and cultivate leadership skills to ensure college and career readiness.

The Employability Skills for Career Readiness identify the “soft skills” needed to be successful in all careers, and must be taught as an integrated component of all CTE course sequences. These standards are available in a separate document.

The **Standards Reference Code** is only used to identify or align performance indicators listed in the standards to daily lesson plans, curriculum documents, or national standards.

Program Name	Standards Reference Code
Construction Technology	CONST

Example: CONST.2.3.4

Standards	Content Standard	Performance Standard	Performance Indicator
Construction Technology	2	3	4

CONTENT STANDARD 1.0 : IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES

PERFORMANCE STANDARD 1.1 : DEMONSTRATE GENERAL LAB SAFETY RULES AND PROCEDURES

1.1.1	Describe general shop safety rules and procedures
1.1.2	Demonstrate knowledge of OSHA/EPA and their role in workplace safety
1.1.3	Comply with the required use of safety glasses, ear protection, gloves, and shoes during lab/shop activities (i.e., personal protection equipment – PPE)
1.1.4	Utilize safe procedures for handling of tools and equipment
1.1.5	Operate lab equipment according to safety guidelines
1.1.6	Identify and use proper lifting procedures and proper use of support equipment
1.1.7	Utilize proper ventilation procedures for working within the lab/shop area
1.1.8	Identify marked safety areas
1.1.9	Identify the location and the types of fire extinguishers and other fire safety equipment; demonstrate knowledge of the procedures for using fire extinguishers and other fire safety equipment
1.1.10	Identify the location and use of eye wash stations
1.1.11	Identify the location of the posted evacuation routes
1.1.12	Identify and wear appropriate clothing for lab/shop activities
1.1.13	Secure hair and jewelry for lab/shop activities
1.1.14	Demonstrate knowledge of the safety aspects of low and high voltage circuits
1.1.15	Locate and interpret material safety data sheets (MSDS)
1.1.16	Prepare time or job cards, reports or records
1.1.17	Perform housekeeping duties
1.1.18	Follow verbal instructions to complete work assignments
1.1.19	Follow written instructions to complete work assignments

PERFORMANCE STANDARD 1.2 : IDENTIFY AND UTILIZE HAND TOOLS

1.2.1	Identify hand tools and their appropriate usage
1.2.2	Identify standard and metric designation
1.2.3	Demonstrate the proper techniques when using hand tools
1.2.4	Demonstrate safe handling and use of appropriate tools
1.2.5	Demonstrate proper cleaning, storage, and maintenance of tools

PERFORMANCE STANDARD 1.3 : IDENTIFY AND UTILIZE POWER TOOLS AND EQUIPMENT

1.3.1	Identify power tools and their appropriate usage
1.3.2	Identify equipment and their appropriate usage
1.3.3	Demonstrate the proper techniques when using power tools and equipment
1.3.4	Demonstrate safe handling and use of appropriate power tools and equipment
1.3.5	Demonstrate proper cleaning, storage, and maintenance of power tools and equipment

CONTENT STANDARD 2.0 : PERFORM GENERAL CONSTRUCTION SKILLS

PERFORMANCE STANDARD 2.1 : DEMONSTRATE PRINT READING PRACTICES

2.1.1	Identify and explain basic construction drawing terms, components, and symbols
2.1.2	Relate information on the construction drawings
2.1.3	Recognize different classifications of construction drawings
2.1.4	Interpret and utilize dimensions
2.1.5	Interpret schematic diagrams (e.g., plumbing, electrical, mechanical)
2.1.6	Explain the purpose of building codes and regulations (e.g., IBC, ICC, NEC, ADA)
2.1.7	Research building codes and zoning regulations for a construction project

PERFORMANCE STANDARD 2.2 : APPLY MATH SKILLS TO CONSTRUCTION APPLICATIONS

2.2.1	Add, subtract, multiply, and divide whole numbers, with and without a calculator
2.2.2	Use a standard ruler, a metric ruler, and a measuring tape to measure
2.2.3	Add, subtract, multiply, and divide fractions
2.2.4	Add, subtract, multiply, and divide decimals, with and without a calculator
2.2.5	Convert decimals to percentages and percentages to decimals
2.2.6	Convert fractions to decimals and decimals to fractions
2.2.7	Explain the various measurement systems in the construction trades
2.2.8	Calculate standard and metric units of length, weight, volume, and temperature
2.2.9	Utilize geometric principles used in the construction industry (e.g., distance, area, and volume)

PERFORMANCE STANDARD 2.3 : UTILIZE MATERIALS HANDLING TECHNIQUES

2.3.1	Define a load
2.3.2	Establish a pre-task plan prior to moving a load
2.3.3	Select appropriate materials-handling equipment for the task
2.3.4	Utilize proper materials-handling techniques
2.3.5	Recognize hazards and follow safety procedures required for materials handling

PERFORMANCE STANDARD 2.4 : EXPLORE CONSTRUCTION CAREER OPPORTUNITIES

2.4.1	Research high skill and high wage career opportunities available for craft professionals in the construction industry
2.4.2	Research postsecondary training opportunities and requirements
2.4.3	Explain the purpose and objectives of an apprenticeship training program
2.4.4	Describe how certified apprentice training can start in high school
2.4.5	Describe the skills, attitudes, and abilities needed to work in the construction industry
2.4.6	Describe how construction careers have impacted today's society and economy

CONTENT STANDARD 3.0 : APPLY SITE LAYOUT PRACTICES

PERFORMANCE STANDARD 3.1 : PERFORM SITE LAYOUT TECHNIQUES

3.1.1	Describe the major responsibilities related to site layout
3.1.2	Convert measurements between feet and inches to decimal feet
3.1.3	Utilize manual or electronic equipment and procedures to take measurements and perform site layout tasks
3.1.4	Determine approximate distances by pacing
3.1.5	Utilize a builder's level and differential leveling procedures to determine site and building elevations
3.1.6	Record site layout data and information in field notes using accepted practices
3.1.7	Check and/or establish 90-degree angles using the 3-4-5 rule (e.g., Pythagorean theorem)

CONTENT STANDARD 4.0 :	UNDERSTAND THE PROPERTIES AND UTILIZATION OF CONCRETE AND MASONRY SYSTEMS
PERFORMANCE STANDARD 4.1 :	**IDENTIFY CONCRETE, REINFORCING MATERIALS, AND FORMING APPLICATIONS**
4.1.1	Identify the material properties of cement
4.1.2	Describe the composition of concrete
4.1.3	Calculate the volume of concrete needed to complete a task
4.1.4	Identify and describe the types of concrete reinforcement materials
4.1.5	Identify various types of footings and foundations and their applications
4.1.6	Identify the parts of various types of forms
4.1.7	Explain the safety procedures associated with the use of concrete forms
4.1.8	Erect, plumb, and brace a simple concrete form with reinforcement
PERFORMANCE STANDARD 4.2 :	**APPLY CONCRETE HANDLING AND PLACING TECHNIQUES**
4.2.1	Identify the equipment used to transport and place concrete
4.2.2	Describe the factors for quality concrete placement
4.2.3	Demonstrate the appropriate methods for placing and consolidating concrete into forms
4.2.4	Demonstrate how to use tools for placing, screeding, floating, and finishing concrete
4.2.5	Determine when conditions permit concrete finishing
4.2.6	Identify the factors and methods that affect the curing of concrete
4.2.7	Demonstrate the proper cleanup procedures for concrete applications
PERFORMANCE STANDARD 4.3 :	**EXPLORE THE MASONRY INDUSTRY**
4.3.1	Discuss the history of the masonry industry
4.3.2	Describe modern masonry materials and methods
4.3.3	State the safety precautions that must be practiced at a work site
4.3.4	Demonstrate basic masonry techniques (i.e., layout, mix and lay mortar, lay brick)
PERFORMANCE STANDARD 4.4 :	**APPLY ADVANCED MASONRY INSTALLATION TECHNIQUES**
4.4.1	Describe the most common types of masonry units
4.4.2	Describe the different types of masonry bonds
4.4.3	Lay a dry bond
4.4.4	Demonstrate how to set up leads and walls
4.4.5	Demonstrate mortar applications and techniques
4.4.6	Demonstrate how to cut brick and block accurately
4.4.7	Lay masonry units in a true course (i.e., plumb, level, straight)
4.4.8	Demonstrate the proper cleanup procedures for masonry applications

CONTENT STANDARD 5.0 : UNDERSTAND AND UTILIZE FRAMING SYSTEMS

PERFORMANCE STANDARD 5.1 : IDENTIFY AND INSTALL FLOOR SYSTEMS

5.1.1	Identify the different types of framing systems
5.1.2	Read and interpret drawings and specifications to determine floor system requirements
5.1.3	Identify floor and sill framing and support members
5.1.4	Describe the methods used to fasten sills to the foundation
5.1.5	Select the proper girder/beam size per construction documents
5.1.6	Compare and contrast the different types of floor joists
5.1.7	Describe different types of bridging and blocking
5.1.8	Analyze different types of flooring framing materials
5.1.9	Explain the purposes of subflooring and underlayment
5.1.10	Categorize fasteners used in floor framing
5.1.11	Estimate the amount of material needed to frame a floor assembly
5.1.12	Lay out and construct a floor assembly
5.1.13	Utilize the proper health and safety procedures when working with floor layouts

PERFORMANCE STANDARD 5.2 : IDENTIFY AND INSTALL WALL AND CEILING SYSTEMS

5.2.1	Identify the components of a wall and ceiling layout
5.2.2	Describe the procedure for laying out a wall
5.2.3	Describe the correct procedure for assembling and erecting an exterior wall
5.2.4	Identify the common materials and methods used for installing sheathing
5.2.5	Lay out, assemble, erect, and brace exterior walls
5.2.6	Describe wall framing techniques used in masonry construction
5.2.7	Explain the use of metal studs in wall framing
5.2.8	Describe the correct procedure for laying out ceiling joists
5.2.9	Cut and install ceiling joists on a wood frame building
5.2.10	Estimate the materials required to frame walls and ceilings
5.2.11	Utilize the proper health and safety procedures when working with wall and ceiling layouts

PERFORMANCE STANDARD 5.3 : IDENTIFY AND INSTALL ROOF SYSTEMS

5.3.1	Define the terms associated with roof framing
5.3.2	Identify the roof framing members used in common roof systems
5.3.3	Compare the methods used to lay out and calculate the length of a rafter
5.3.4	Identify the various types of trusses used in roof systems
5.3.5	Use a rafter framing square, speed square, and calculator in laying out a roof
5.3.6	Identify various types of sheathing used in roof systems
5.3.7	Erect a common roof system
5.3.8	Frame a roof opening (e.g., vents, dormers, skylights, etc.)
5.3.9	Estimate the materials used in framing and sheathing a roof
5.3.10	Utilize the proper health and safety procedures when working with roof systems

PERFORMANCE STANDARD 5.4 : IDENTIFY AND INSTALL BASIC STAIR SYSTEMS	
5.4.1	Identify the various types of stairs
5.4.2	Identify the various parts of stairs
5.4.3	Identify the materials used in the construction of a common stair system
5.4.4	Interpret construction drawings of stairs
5.4.5	Calculate the rise and run for a common stair system (i.e., treads, risers, stringer)
5.4.6	Lay out and cut stringers, risers, and treads
5.4.7	Build a small stair unit with a temporary handrail
5.4.8	Utilize the proper health and safety procedures when working with stair layouts

CONTENT STANDARD 6.0 : UTILIZE EXTERIOR FINISH APPLICATIONS	
PERFORMANCE STANDARD 6.1 : DEMONSTRATE ROOFING APPLICATIONS	
6.1.1	Identify the materials and methods used in roofing (i.e., composition, wood, metal, tile)
6.1.2	Explain how to ensure various roof projections are watertight
6.1.3	Lay out, cut, and install a cricket/saddle and a valley
6.1.4	Install roofing materials on gables, hips, and valleys (e.g., composition, wood, metal, tile, etc.)
6.1.5	Install main and hip ridge caps
6.1.6	Utilize the proper health and safety procedures when working with roofing applications
PERFORMANCE STANDARD 6.2 : DEMONSTRATE EXTERIOR FINISHING APPLICATIONS	
6.2.1	Compare and contrast exterior finishes based on regional applications
6.2.2	Describe the types and purposes of wall insulation, thermal barriers, and flashing
6.2.3	Identify common cornice types
6.2.4	Produce an estimate of material costs for common exterior finishes
6.2.5	Describe the types and applications of common wood siding
6.2.6	Describe fiber cement siding and its uses
6.2.7	Describe the types and styles of vinyl and metal siding
6.2.8	Describe the types and applications of stucco and masonry veneer finishes
6.2.9	Describe the types and applications of special exterior finish systems
6.2.10	Install three types of siding commonly used
6.2.11	Utilize the proper health and safety procedures when working with exterior applications

CONTENT STANDARD 7.0 : APPLY ELECTRICAL PRINCIPLES	
PERFORMANCE STANDARD 7.1 : IDENTIFY ELECTRICAL SAFETY PROCEDURES	
7.1.1	Demonstrate safe working practices in the construction environment
7.1.2	Explain the purpose of OSHA and how it promotes safety on the job
7.1.3	Identify electrical hazards and how to avoid or minimize them in the workplace
7.1.4	Explain electrical safety issues concerning lockout/tagout procedures, confined space entry, respiratory protection, and fall protection systems
7.1.5	Develop a task plan and a hazard assessment for a given task and select the appropriate PPE and work methods to safely perform the task
PERFORMANCE STANDARD 7.2 : IDENTIFY FUNDAMENTAL ELECTRICAL SYSTEMS	
7.2.1	Explain the role of the National Electrical Code® in residential wiring and describe how to determine electric service requirements
7.2.2	Explain the grounding requirements of a residential electric service
7.2.3	Calculate and select service-entrance equipment (i.e., panel box, load requirements, breakers)
7.2.4	Select the proper wiring methods for various types of residential construction systems
7.2.5	Compute branch circuit loads and explain their installation requirements
7.2.6	Discuss the types and purposes of equipment grounding conductors
7.2.7	Explain the purpose and appropriate usage of ground fault circuit interrupters
7.2.8	Explain the purpose and appropriate usage of arc fault circuit interrupters
7.2.9	Size outlet boxes and select the proper type for different wiring methods
7.2.10	Describe the installation rules for dedicated circuits for various equipment (e.g., ranges, dryers, HVAC systems, hot tubs, water heaters, etc.)
7.2.11	Explain how wiring devices are selected and installed
7.2.12	Describe the installation and control of lighting fixtures
7.2.13	Install a basic electrical system

CONTENT STANDARD 8.0 : APPLY PLUMBING PRINCIPLES

PERFORMANCE STANDARD 8.1 : IDENTIFY DRAIN, WASTE, AND VENT (DWV) SYSTEMS

8.1.1	Explain how waste moves from a fixture through the drain system to the environment
8.1.2	Identify the major components of a drainage system and describe their functions
8.1.3	Investigate the different types of traps, usages, and applications
8.1.4	Identify the various types of drain, waste, and vent (DWV) fittings and their applications
8.1.5	Discuss significant code and health issues, violations, and consequences related to DWV systems

PERFORMANCE STANDARD 8.2 : IDENTIFY AND UTILIZE PLASTIC PIPE AND FITTINGS

8.2.1	Identify types of materials and schedules of plastic piping
8.2.2	Identify proper and improper applications of plastic piping
8.2.3	Identify types of fittings and valves used with plastic piping
8.2.4	Identify and determine the kinds of hangers and supports needed for plastic piping
8.2.5	Identify the various techniques used in hanging and supporting plastic piping
8.2.6	Explain proper procedures for the handling, storage, and protection of plastic pipes
8.2.7	Calculate angles and slope, measure, cut, and join plastic piping (e.g., connectors, glues, solvents)
8.2.8	Install a basic plastic piping system
8.2.9	Demonstrate the proper cleanup procedures for specific joining materials

PERFORMANCE STANDARD 8.3 : IDENTIFY AND UTILIZE COPPER PIPE AND FITTINGS

8.3.1	Identify the types of materials and schedules used with copper piping
8.3.2	Identify the material properties, storage, and handling requirements of copper piping
8.3.3	Identify the types of fittings and valves used with copper piping
8.3.4	Identify the techniques used in hanging and supporting copper piping
8.3.5	Calculate angles, measure, cut, and join copper piping
8.3.6	Install a basic copper piping system
8.3.7	Identify the hazards and safety precautions associated with copper piping

CONTENT STANDARD 9.0 :	IDENTIFY HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) PRINCIPLES
PERFORMANCE STANDARD 9.1 :	**EXPLORE HVAC OPPORTUNITIES AND TECHNIQUES**
9.1.1	Explain the basic principles of heating, ventilation, and air conditioning
9.1.2	Describe what the Clean Air Act means to the HVAC trade
9.1.3	Describe types of regulatory codes encountered in the HVAC trade
9.1.4	Identify the types of schedules/drawings used in the HVAC trade

CROSSWALKS AND ALIGNMENTS OF CONSTRUCTION TECHNOLOGY STANDARDS AND THE COMMON CORE STATE STANDARDS, THE NEVADA SCIENCE STANDARDS, AND THE COMMON CAREER TECHNICAL CORE STANDARDS

CROSSWALKS (ACADEMIC STANDARDS)

The crosswalk of the Construction Technology Standards shows links to the Common Core State Standards for English Language Arts and Mathematics and the Nevada Science Standards. The crosswalk identifies the performance indicators in which the learning objectives in the Construction Technology program support academic learning. The performance indicators are grouped according to their content standard and are crosswalked to the English Language Arts and Mathematics Common Core State Standards and the Nevada Science Standards.

ALIGNMENTS (MATHEMATICAL PRACTICES)

In addition to correlation with the Common Core Mathematics Content Standards, many performance indicators support the Common Core Mathematical Practices. The following table illustrates the alignment of the Construction Technology Standards Performance Indicators and the Common Core Mathematical Practices. This alignment identifies the performance indicators in which the learning objectives in the Construction Technology program support academic learning.

CROSSWALKS (COMMON CAREER TECHNICAL CORE)

The crosswalk of the Construction Technology Standards shows links to the Common Career Technical Core. The crosswalk identifies the performance indicators in which the learning objectives in the Construction Technology program support the Common Career Technical Core. The Common Career Technical Core defines what students should know and be able to do after completing instruction in a program of study. The Construction Technology Standards are crosswalked to the Architecture & Construction Career Cluster™ and the Construction Career Pathway.

CROSSWALK OF CONSTRUCTION TECHNOLOGY STANDARDS AND THE COMMON CORE STATE STANDARDS

CONTENT STANDARD 1.0: IDENTIFY LAB ORGANIZATION AND SAFETY PROCEDURES

Performance Indicators	Common Core State Standards and Nevada Science Standards
1.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
1.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. **English Language Arts: Speaking and Listening Standards** SL.11-12.1a Come to discussions prepared, having read and researched material under study; explicitly draw on that preparation by referring to evidence from texts and other research on the topic or issue to stimulate a thoughtful, well reasoned exchange of ideas.
1.1.9	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
1.1.15	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.2 Determine the central ideas or conclusions of a text; summarize complex concepts, processes, or information presented in a text by paraphrasing them in simpler but still accurate terms. RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics. RST.11-12.5 Analyze how the text structures information or ideas into categories or hierarchies, demonstrating understanding of the information or ideas. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. WHST.11-12.9 Draw evidence from informational texts to support analysis, reflection, and research.
1.1.16	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

1.1.18	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. **English Language Arts: Speaking and Listening Standards** SL.11-12.1d Respond thoughtfully to diverse perspectives; synthesize comments, claims, and evidence made on all sides of an issue; resolve contradictions when possible; and determine what additional information or research is required to deepen the investigation or complete the task.
1.1.19	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text. RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.

CONTENT STANDARD 2.0: PERFORM GENERAL CONSTRUCTION SKILLS

Performance Indicators	Common Core State Standards and Nevada Science Standards
2.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
2.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics.
2.1.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
2.1.7	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. **English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
2.2.8	**Math: Geometry – Geometric Measurement and Dimension** G-GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
2.2.9	**Math: Geometry – Geometric Measurement and Dimension** G-GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems. **Math: Geometry- Modeling with Geometry** G-MG.1 Use geometric shapes, their measures, and their properties to describe objects.
2.3.2	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
2.3.5	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

2.4.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
2.4.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 11–12 texts and topics. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
2.4.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
2.4.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
2.4.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
2.4.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

CONTENT STANDARD 3.0: APPLY SITE LAYOUT PRACTICES

Performance Indicators	Common Core State Standards and Nevada Science Standards
3.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
3.1.3	**Math: Number & Quantity – Quantities** N-Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays. N-Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities.
3.1.6	**English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

CONTENT STANDARD 4.0: UNDERSTAND THE PROPERTIES AND UTILIZATION OF CONCRETE AND MASONRY SYSTEMS

Performance Indicators	Common Core State Standards and Nevada Science Standards
4.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
4.1.3	**Math: Algebra – Reasoning with Equations and Inequalities** A-REI.3 Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters. **Math: Number & Quantity – Quantities** N-Q.3 Choose a level of accuracy appropriate to limitations on measurement when reporting quantities. **Math: Geometry – Geometric Measurement and Dimension** G-GMD.3 Use volume formulas for cylinders, pyramids, cones, and spheres to solve problems.
4.1.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
4.1.7	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
4.1.8	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

4.2.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
4.2.7	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
4.3.1	**English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
4.3.2	**English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
4.3.3	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
4.4.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
4.4.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

CONTENT STANDARD 5.0: UNDERSTAND AND UTILIZE FRAMING SYSTEMS

Performance Indicators	Common Core State Standards and Nevada Science Standards
5.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
5.1.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.1.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
5.1.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.1.7	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.1.8	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

5.1.9	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.1.13	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
5.2.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.2.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.2.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.2.7	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

5.2.8	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.2.11	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
5.3.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible.
5.3.10	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
5.4.4	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
5.4.8	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

CONTENT STANDARD 6.0: UTILIZE EXTERIOR FINISH APPLICATIONS

Performance Indicators	Common Core State Standards and Nevada Science Standards
6.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
6.1.6	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
6.2.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
6.2.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
6.2.5	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

6.2.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
6.2.7	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
6.2.8	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
6.2.9	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
6.2.11	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

CONTENT STANDARD 7.0: APPLY ELECTRICAL PRINCIPLES

Performance Indicators	Common Core State Standards and Nevada Science Standards
7.1.1	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
7.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
7.1.4	**English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
7.1.5	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
7.2.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
7.2.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
7.2.3	**Math: Number & Quantity - Quantities** N-Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.

7.2.5	**Math: Number & Quantity - Quantities** N-Q.1 Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays.
7.2.6	**English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks.
7.2.7	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
7.2.8	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
7.2.10	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
7.2.11	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

7.2.12	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.

CONTENT STANDARD 8.0: APPLY PLUMBING PRINCIPLES

Performance Indicators	Common Core State Standards and Nevada Science Standards
8.1.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
8.1.5	**English Language Arts: Speaking and Listening Standards** SL.11-12.2 Integrate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, orally) in order to make informed decisions and solve problems, evaluating the credibility and accuracy of each source and noting any discrepancies among the data. SL.11-12.4 Present information, findings, and supporting evidence, conveying a clear and distinct perspective, such that listeners can follow the line of reasoning, alternative or opposing perspectives are addressed, and the organization, development, substance, and style are appropriate to purpose, audience, and a range of formal and informal tasks. **Science: Nature of Science** N.12.B.1 Students know science, technology, and society influenced one another in both positive and negative ways. N.12.B.2 Students know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts.
8.2.6	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
8.2.9	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.
8.3.7	**English Language Arts: Reading Standards for Literacy** RST.11-12.3 Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

CONTENT STANDARD 9.0: IDENTIFY HEATING, VENTILATION, AND AIR CONDITIONING (HVAC) PRINCIPLES

Performance Indicators	Common Core State Standards and Nevada Science Standards
9.1.1	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation.
9.1.2	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. **Science: Nature of Science** N.12.B.1 Students know science, technology, and society influenced one another in both positive and negative ways.
9.1.3	**English Language Arts: Reading Standards for Literacy in Science and Technical Subjects** RST.11-12.9 Synthesize information from a range of sources (e.g., texts, experiments, simulations) into a coherent understanding of a process, phenomenon, or concept, resolving conflicting information when possible. **English Language Arts: Writing Standards for Literacy in Science and Technical Subjects** WHST.11-12.8 Gather relevant information from multiple authoritative print and digital sources, using advanced searches effectively; assess the strengths and limitations of each source in terms of the specific task, purpose, and audience; integrate information into the text selectively to maintain the flow of ideas, avoiding plagiarism and overreliance on any one source and following a standard format for citation. **Science: Nature of Science** N.12.B.1 Students know science, technology, and society influenced one another in both positive and negative ways. N.12.B.2 Students know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts.

ALIGNMENT OF CONSTRUCTION TECHNOLOGY STANDARDS AND THE COMMON CORE MATHEMATICAL PRACTICES

Common Core Mathematical Practices	Construction Technology Performance Indicators
1. Make sense of problems and persevere in solving them.	
2. Reason abstractly and quantitatively.	5.1.11; 5.2.10; 5.3.3, 5.3.9 6.2.4 7.2.3, 7.2.5, 7.2.9
3. Construct viable arguments and critique the reasoning of others.	5.1.11; 5.2.10; 5.3.9; 6.2.4
4. Model with mathematics.	2.2.9
5. Use appropriate tools strategically.	2.2.9 3.1.2, 3.1.3, 3.1.7 4.1.3 5.1.11; 5.2.10; 5.3.3, 5.3.5, 5.3.9; 5.4.5 6.2.4 7.2.3, 7.2.5, 7.2.9; 8.2.7; 8.3.5
6. Attend to precision.	2.1.4; 2.2.1, 2.2.2, 2.2.3, 2.2.4, 2.2.5, 2.2.6, 2.2.8, 2.2.9 3.1.2, 3.1.3, 3.1.7 4.1.3 5.3.3, 5.3.5; 5.4.5 6.2.4 7.2.3, 7.2.5, 7.2.9; 8.2.7; 8.3.5
7. Look for and make use of structure.	2.2.9
8. Look for and express regularity in repeated reasoning.	

CROSSWALKS OF CONSTRUCTION TECHNOLOGY STANDARDS AND THE COMMON CAREER TECHNICAL CORE

Architecture & Construction Career Cluster™ (AC)	Performance Indicators
1. Use vocabulary, symbols and formulas common to architecture and construction.	2.1.1, 2.1.5; 2.2.1 – 2.2.9 2.3.1; 3.1.2, 3.1.7; 4.1.3; 5.1.2; 5.3.1, 5.3.9; 5.4.4 5.4.5; 6.2.4; 7.2.3, 7.2.5 7.2.9; 8.2.1, 8.2.7; 8.3.1 8.3.5; 9.1.4
2. Use architecture and construction skills to create and manage a project.	3.1.5; 4.1.8; 4.3.4; 4.4.3 5.1.12; 5.2.5, 5.2.9 5.3.7, 5.3.8; 5.4.6, 5.4.7 6.1.3-6.1.5; 6.2.10 7.2.13; 8.2.8; 8.3.6
3. Comply with regulations and applicable codes to establish and manage a legal and safe workplace.	1.1.1 - 1.1.19; 2.1.6 7.1.2; 7.2.1; 8.1.5 9.1.2, 9.1.3
4. Evaluate the nature and scope of the Architecture & Construction Career ClusterTM and the role of architecture and construction in society and the economy.	2.4.6
5. Describe the roles, responsibilities and relationships found in the architecture and construction trades and professions, including labor/management relationships.	ESCR 1.2.5
6. Read, interpret and use technical drawings, documents and specifications to plan a project.	2.1.1 – 2.1.7; 5.1.2; 5.4.4 9.1.4
7. Describe career opportunities and means to achieve those opportunities in each of the Architecture & Construction Career Pathways.	ESCR.1.2.7; 2.4.1-2.4.5

Construction Career Pathway (AC-CST)	Performance Indicators
1. Describe contractual relationships between all parties involved in the building process.	ESCR 1.2.10
2. Describe the approval procedures required for successful completion of a construction project.	2.1.6, 2.1.7; 7.2.1; 9.1.3
3. Implement testing and inspection procedures to ensure successful completion of a construction project.	2.1.6; 7.1.5
4. Apply scheduling practices to ensure the successful completion of a construction project.	ESCR 1.2.8

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5. Apply practices and procedures required to maintain jobsite safety.	1.1.1 - 1.1.19; 2.3.5 4.1.7; 4.3.3; 4.4.8 5.1.13; 5.2.11; 5.3.10; 5.4.8 6.1.6; 6.2.11; 7.1.1-7.1.5 8.1.5; 8.2.9; 8.3.7
6. Manage relationships with internal and external parties to successfully complete construction projects.	ESCR 1.1.2 – 1.1.7
7. Compare and contrast the building systems and components required for a construction project.	4.1.1; 4.4.1; 5.1.1; 5.2.1 5.3.2; 5.4.1; 6.1.1; 6.2.1 7.2.1; 8.1.2; 9.1.1
8. Demonstrate the construction crafts required for each phase of a construction project.	3.1.5; 4.1.8; 4.3.4; 4.4.3 5.1.12; 5.2.5, 5.2.9 5.3.7, 5.3.8; 5.4.6, 5.4.7 6.1.3-6.1.5; 6.2.10 7.2.13; 8.2.8; 8.3.6
9. Safely use and maintain appropriate tools, machinery, equipment and resources to accomplish construction project goals.	1.2.1 - 1.2.5; 1.3.1 - 1.3.5